

Box 13

CYCLICAL ADJUSTMENT OF THE GOVERNMENT BUDGET BALANCE

Government revenue consists mainly of taxes and social contributions that are levied on different types of income and expenditure. Therefore, it tends to rise and fall in line with fluctuations in economic activity. By contrast, and with the notable exception of unemployment benefits, the bulk of government spending is largely unaffected by the economic cycle. Consequently, all other things being equal, government budget balances tend to improve during economic upturns and worsen during economic downturns.

The purpose of cyclical adjustment is to make a correction for the influence of the economic cycle on the public finances and arrive at a measure that better reflects the underlying, or structural,

budgetary position. Estimating the cyclical component of the budget generally involves trying to measure: (i) where the economy stands in relation to its potential or trend level; and (ii) how different components of the budget normally respond to fluctuations in economic activity.

Cyclical adjustment in the context of the Stability and Growth Pact

The evolution of the structural budget balance, measured as the cyclically adjusted budget balance net of certain one-off and temporary measures, is one of the indicators closely monitored in the context of the Stability and Growth Pact. To this end, a commonly agreed method of cyclical adjustment has been developed and refined by the European Commission, which also draws on work by the OECD. In this method, the cyclical component of the budget balance is the product of the estimated output gap¹ and the assumed overall sensitivity of the budget with respect to output.² The output gap is estimated on the basis of a production function. The estimates obtained are updated at the time of each macroeconomic forecast. The overall budget sensitivity is a fixed parameter which is only re-estimated periodically (e.g. once every five years). It is derived from estimates or assumptions for: (i) the elasticity of cyclical budget items (taxes, social contributions and unemployment benefits) in relation to relevant GDP components (wages, profits and consumption) and unemployment; and (ii) the elasticity of these GDP components and unemployment in relation to overall GDP. These elasticities are usually fairly close to unity on average. This implies that the overall budget sensitivity is usually estimated as being close to the share of cyclical revenue and spending in GDP, which for the euro area as a whole is close to 0.5. In other words, for every 1% gap between output and its estimated potential, the corresponding cyclical component of the budget balance would be around ½% of GDP.

Limitations of cyclical adjustment

Cyclical adjustment is an important part of the toolkit for the conduct and assessment of fiscal policy. At the same time, all methods of cyclical adjustment have their limitations. It is therefore important that estimates of the cyclically adjusted budget balance are properly interpreted, bearing these limitations in mind. Two main problems are associated with most standard methods.

The first problem is that potential or trend economic activity is not observable and the view in real time on where the economy stands in relation to its potential or trend level depends to a large extent on forecasts for the future. This means that the assessment regarding the size of the output gap at any particular point in time is naturally reassessed *ex post* as new data comes in and forecast errors become known.

Revisions to output gap estimates, and hence estimated cyclical components of the budget balance, are heaviest when the economy is hit by unpredictable shocks. To give an example, in the autumn of 2007, euro area GDP for that year was viewed as being more or less in line with its potential. This meant that the cyclical component of the euro area budget balance was estimated to be very close to zero. However, as the euro area economy was subsequently hit by the global economic and financial crisis, this view changed. Output is now viewed as having been

1 See D'Auria, F., Denis, C., Havik, K., McMorrow, K., Planas, C., Raciborski, R., Röger W., "The production function methodology for calculating potential growth rates and output gaps", *European Economy – Economic Papers*, No 420, European Commission, July 2010.

2 See *New and updated budgetary sensitivities for the EU budgetary surveillance*, European Commission (DG-ECFIN website), September 2005.

around 2½% above potential, implying a positive cyclical component of the budget balance of around 1¼% of GDP (see Chart A). This implies a corresponding revision to the estimate of the euro area cyclically adjusted deficit for that year (see Chart B).

The second problem is that the actual relationship between cyclical budget components and GDP is more tenuous than the assumptions underlying cyclical adjustment imply. To start with, it is not only the overall level but also the composition of GDP which is generally significant for the public finances. For example, GDP growth driven by net exports will be less tax-rich than GDP growth driven by domestic demand. The cyclical adjustment methodology currently employed for fiscal analysis within the ESCB seeks to include such influences in the cyclical component of the budget balance.³ To this end, in this method, cyclical components are calculated separately for different revenue and spending streams on the basis of the cyclical evolution of whichever macroeconomic aggregate (included in the corresponding macroeconomic projection) is viewed as more closely approximating the actual tax or spending base.

However, actual tax and spending bases still tend to be very different – and to behave very differently – from the macroeconomic aggregates which most closely approximate them. There are many reasons for this, and these are generally related to the complex nature of tax and benefit systems. There are several examples. First, taxes are levied partly on incomes (e.g. realised capital gains) and expenditure (e.g. purchases of existing housing) which do not enter into the calculation of GDP. Second, the main national accounts’ measure of profits (the operating surplus) is an aggregation of profits and losses across firms and households, although in tax systems losses are not taxed negatively; they are instead carried forward and offset against profits in future years. Third, it is not so much broad aggregates (e.g. private consumption) but their composition (e.g. consumption of fuel, tobacco and alcohol) which determines tax receipts. Fourth, unemployment benefit outlays depend not only on aggregate unemployment, but on whether

3 See Bouthevillain et al., *Working Paper Series*, No 77, ECB, Frankfurt am Main, September 2001.

Chart A Successive estimates of the cyclical component¹⁾ of the 2007 euro area general government balance



Source: European Commission.
1) Cyclical component based on the gap between actual and potential output at constant market prices as reported in successive European Commission autumn economic forecasts.

Chart B Successive estimates of the 2007 euro area cyclically adjusted¹⁾ general government balance



Source: European Commission.
1) Cyclically adjusted general government balance based on the gap between actual and potential output at constant market prices as reported in successive European Commission autumn economic forecasts.

unemployed persons qualify for benefit, which will normally depend on past social contributions, unemployment duration and so on. Year-on-year fluctuations in government revenue and spending caused by such factors will not be captured in the cyclical component of the budget balance, even though these fluctuations may be related directly or indirectly to the economic cycle. Such influences cannot be accommodated by standard cyclical adjustment procedures because their main determinants are not features of standard macroeconomic projections.

Another issue to bear in mind is that the output gap is a volume concept, while taxes and benefits depend on nominal values. Cyclical adjustment attempts to adjust for real economic cycles and not price cycles. Or, to put it another way, it is assumed that fluctuations in prices do not exert a significant cyclical influence on the government budget balance. Inflation does, however, matter for the public finances. This is not least because spending budgets are generally fixed in nominal terms, while many taxes and benefits will adjust automatically to wage and price inflation.

Conclusions

Bearing all of the above in mind, the cyclical component of the budget balance is probably best interpreted as follows. It is that part of the deficit or surplus which will tend to self-correct over time as a result of the impact of the economic cycle, assuming that today's GDP forecast turns out to be correct and assuming a stylised and stable relationship between cyclical budget components and GDP in the future. Based on these assumptions, reducing the cyclically adjusted budget deficit generally requires some combination of higher taxes and/or a path of non-cyclical spending which is maintained below the potential or trend growth rate of the economy. More generally, it should be noted that many factors, including not just the quasi-cyclical factors mentioned above but also non-cyclical factors such as population ageing, will exert an influence on the cyclically adjusted budget balance. Anticipating such factors to the extent possible and taking them into account when calibrating tax and spending decisions is important for the appropriate formulation of fiscal policy. It is also because of the uncertainties surrounding estimates of cyclically adjusted budget balances that compliance with headline budget deficit limits, notably the 3% of GDP reference value, remains an essential element of the Stability and Growth Pact.